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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,132	10/23/2001	B. Scott Driggs	020174C-002910US	2449

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EXAMINER	
KEASEL, ERIC S	

ART UNIT	PAPER NUMBER
3754	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,132	DRIGGS ET AL.	
	Examiner	Art Unit	
	Eric Keasel	3754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *5-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 7, 2005 has been entered.

Election/Restrictions

2. Applicant's election without traverse of Group I in Paper No. 7 is acknowledged.

3. Claims 5-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first electrode being driven into the flow channel (claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. None of the embodiments has an electrode that is driven into the flow channel. In one embodiment, one electrode defines a boundary of the flow channel; in the others, the electrode pushes or distorts elastomeric layers.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Biegelsen et al. (US Patent Number 5,971,355).

Biegelsen et al. disclose a valve comprising six elastomeric layers (see column 6, lines 14 and 15 for the material selection). The embodiment is Fig. 10 has two sets of electrodes that open and close the valve when a potential difference is applied. The diaphragm is also read as an electrode as it is an electrical conductive member.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Cabuz (US Patent Number 5,836,750).

Cabuz discloses a valve comprising an elastomeric layer (which can be read as multiple elastomeric layers positioned over one another), with electrodes (23, 25) that actuate the deflectable ceiling portion into a flow channel (see Figs. 1-3). The diaphragm is also read as an electrode as it is an electrical conductive member.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al. in view of Gravesen et al. (US Patent Number 5,452,878).

Biegelsen et al. disclose a valve comprising six elastomeric layers (see column 6, lines 14 and 15 for the material selection). The embodiment is Fig. 10 has two sets of electrodes that open and close the valve when a potential difference is applied. Although Biegelsen et al. briefly mentions micromirrors, there is no clear teaching of a reflective micromirror surface positioned over the ceiling of the flow channel with a physical orientation of the reflective micromirror surface altered when the ceiling of the flow channel is driven into the flow channel.

Gravesen et al. disclose the use of a micromirror surface on lever (33) on a similar microvalve (see Figs. 8a-9 and column 4, lines 51-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the micromirror surface of Gravesen et al. over the ceiling of the flow channel with a physical orientation of the micromirror surface altered when the ceiling of the flow channel s driven into the flow channel in order to effect a deliberate change-over of light paths using the actuation device as taught by Gravesen et al. (see column 4, lines 55-58).

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cabuz in view of Gravesen et al.

Cabuz discloses a valve comprising an elastomeric layer (which can be read as multiple elastomeric layers positioned over one another), with electrodes (23, 25) that actuate the deflectable ceiling portion into a flow channel (see Figs. 1-3). Gravesen et al. disclose the use of a micromirror surface on lever (33) on a similar microvalve (see Figs. 8a-9 and column 4, lines 51-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the micromirror surface of Gravesen et al. over the ceiling of the flow channel with a physical orientation of the micromirror surface altered when the ceiling of the flow channel s driven into the flow channel in order to effect a deliberate change-over of light paths using the actuation device as taught by Gravesen et al. (see column 4, lines 55-58).

12. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravesen et al. in view of McCoy et al. (US Patent Number 3,839,176).

Gravesen et al. disclose the claimed invention, except Gravesen et al. is silent as to whether the insulating diaphragm layer (12) is elastomeric. McCoy et al. discloses the use of elastomeric insulating layers for electrodes in fluid handling systems. It would have been obvious to one having ordinary skill in the art at the time the invention was made the to have made the material selection of an elastomeric material for the diaphragm layer in order to provide a material that can insulate the electrode and be resistant to fouling by contaminants as taught by McCoy et al.

Allowable Subject Matter

13. Claims 3 and 4 are allowed.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Keasel whose telephone number is (571) 272-4929. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on (571) 272-4906. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Keasel 8 AUG 2005

Eric Keasel
Primary Examiner
Art Unit 3754